NRCS Natural Resources Conservation Service

Job Sheet MT511-JS1

Forage Harvest Management

Montana Conservation Practice Job Sheet 511

Definition

The timely cutting and removal of forages from the field as hay, green-chop or ensilage.

Purpose

Appropriate forage harvest management is implemented to 1) optimize the quantity and quality of forage at desired levels, 2) promote vigorous plant re-growth, 3) maintain stand life, 4) manage for desired species composition, 5) use forage plant biomass as a soil nutrient uptake tool, 6) control weeds, insects, and disease, 7) and maintain or improve wildlife habitat.

Where used

This practice applies to all land uses where machine harvested forage crops are grown, including seeded hayland, native grass/sedge meadows, and rangeland harvested for hay.

Wildlife

Forage harvest management can enhance wildlife objectives depending on the vegetative species used and management practiced. Consider using species that can provide food and cover for important wildlife. Delay harvest until after nesting season if practical

Resource management system

Forage harvest management is normally established as part of a conservation management system to address the soil, water, air, plant, animal, and human needs as related to the owner's goals and objectives. It is important to consider the conservation crop rotation, nutrient and pest management, livestock forage and grazing requirements, agricultural waste utilization (if applicable), wildlife habitat needs, and other conservation practices, when designing management of forages.

NRCS, MT
August 2004

Two examples of forages, White Clover, on the left can be planted for use as hay or in a mix with grasses. It also is a great wildlife species. The legume on the right is Arrowleaf Clover and is a important legume species in southeastern US, where it is grown as a forage crop and winter annual cover crop.

Operation and maintenance

Before harvest, clear fields of debris that could damage machinery or if ingested by livestock, lead to sickness (for example, hardware disease) or death.

Operate all forage harvesting equipment at the optimum settings and speeds to minimize loss of leaves.

Set shear-plate on forage chopper to the proper theoretical cut for the crop being harvested. Keep knives well sharpened. Do not use re-cutters or screens unless forage moisture levels fall below recommended levels for optimum chopping action.

Regardless of silage/haylage storage method, ensure good compaction and an airtight seal to exclude oxygen and mold formation. Fall grazing is not recommended to maintain stand productivity. However, if hay lands are fall grazed, grazing should be delayed until after a killing frost.

Ensure that a balanced fertility program is utilized to minimize the potential for **grass tetany**, a condition that occurs in ruminant cattle when soil nitrogen, magnesium and potash are improperly balanced. Problems are most common in the spring with lush grass growth. Magnesium minerals may also be utilized to supplement feed where concerns are an issue.

Nitrate poisoning may also be a concern during certain stages. Nitrate poisoning may occur if animals ingest forages with high nitrate concentrations (in excess of 0.35% to 0.45% nitrate in diet). Nitrate poisoning can occur in annual forages as well as perennial forages. Common causes of nitrate poisoning are

- High applications of nitrogen fertilizer or high soil nitrate levels.
- Drought conditions
- Low light intensity
- Management (if animals are made to graze closely, they will eat more of the lower stem tissue).

Management to minimize nitrate poisoning includes conducting a chemical analysis on species known for accumulating nitrates (sudan, sorghum, oat hay) prior to feeding, test water source for nitrates, ensilage forage (reduces nitrate levels by 40-60%)dilute high nitrate feeds with low nitrate feeds, change rations over a 7-10 day period, if pasture is suspected of high nitrate levels only graze a few animals the first week and when deemed safe turn the rest of animals out, do not use damp feed (dampness heightens toxicity levels. 0.0 to .44% KNO3 is considered safe to feed.

Specifications

Site-specific requirements are listed on the specifications sheet. Additional provisions are entered on the job sketch sheet. Specifications are prepared in accordance with the NRCS Field Office Technical Guide. See practice standard Filter Strip, code 511.

Forage Harvest Management – Job Sheet

Landowner_____ Planning Unit_____

Purpose (check all that apply)	
☐ optimize the quantity and quality of forage	☐ promote vigorous plant re-growth
☐ maintain stand life	☐ manage for desired species composition
☐ use forage plant biomass as a soil nutrient uptake tool	☐ control weeds, insects, and disease
☐ maintain or improve wildlife habitat	☐ Other:

Layout	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6
Key Species						
Maturity stage						
Harvest interval (time between cuttings)						
Moisture Content						
Stubble Height						
Length of cut (if applicable)						

Soil Fertilization and Amend.	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6
Soil Analysis (N-P-K) (date of analysis)						
N Fertilizer application (lbs/acre)						
P_2O Fertilizer application (lbs/acre)						
K_2O Fertilizer application (lbs/acre)						
Other nutrient application (lbs/acre)						

Wildlife Habitat

To provide suitable habitat for _____ wildlife specie(s) the following harvest schedule(s), cover patterns, and plant height to provide suitable habitat for the desired specie(s) should be maintained:

Operation and Maintenance

Before harvest, clear fields of debris that could damage machinery or if ingested by livestock, lead to sickness (for example, hardware disease) or death. Operate all forage harvesting equipment at the optimum settings and speeds to minimize loss of leaves. Set shear-plate on forage chopper to the proper theoretical cut for the crop being harvested. Keep knives well sharpened. Do not use re-cutters or screens unless forage moisture levels fall below recommended levels for optimum chopping action. Regardless of silage/haylage storage method, ensure good compaction and an airtight seal to exclude oxygen and mold formation.

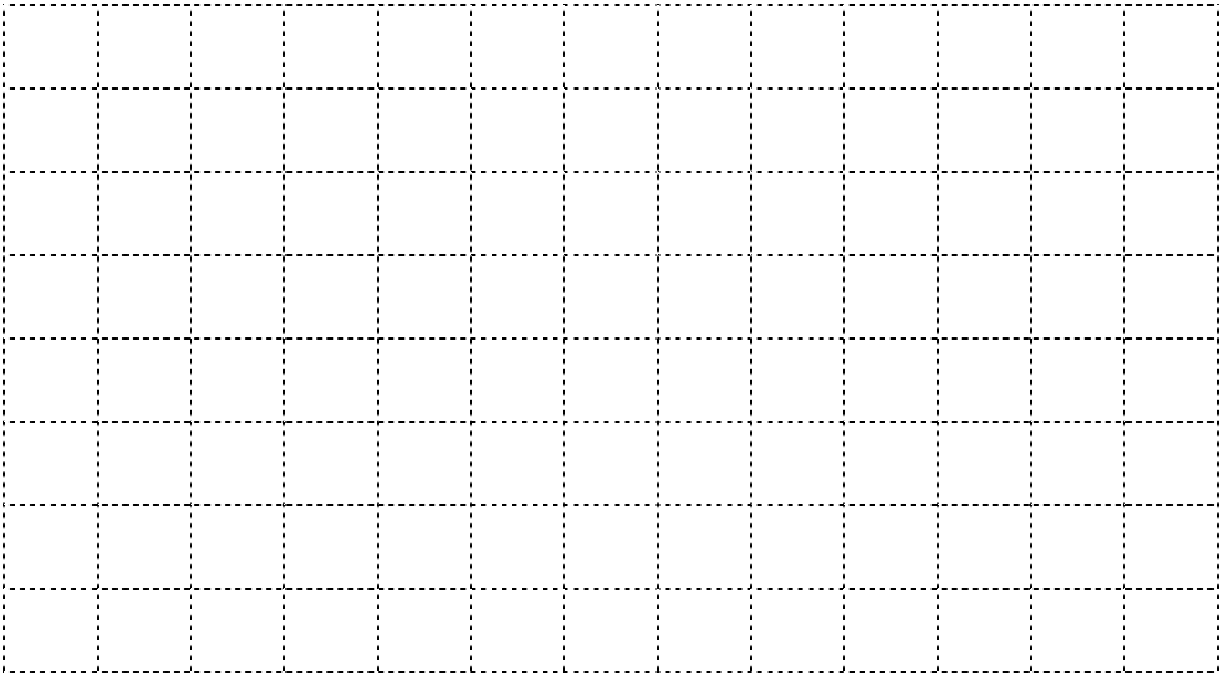
Fall grazing is not recommended to maintain stand productivity. However, if hay lands are fall grazed, grazing should be delayed until after a killing frost.

Additional requirements:

Forage Harvest Management – Job Sheet

If needed, an aerial view or a side view of the practice can be shown below. Other relevant information, complementary practices and measures, and additional specifications may be included.

Scale 1"=_____ ft. (NA indicates sketch not to scale: grid size=1/2" by 1/2")



Approvals:

_____	_____	_____
Planner/designer	Job Class	Date

Certification:

I hereby certify that this practice has been installed in accordance with NRCS standards and specification**s.**

_____	_____	_____
Producer	Job Class	Date